

Graphing Linear Equations

A.REI.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.

What am I learning today?

How to graph a linear equation or inequality

How will I show that I learned it?

Graph a linear equation or inequality in slope-intercept or standard form

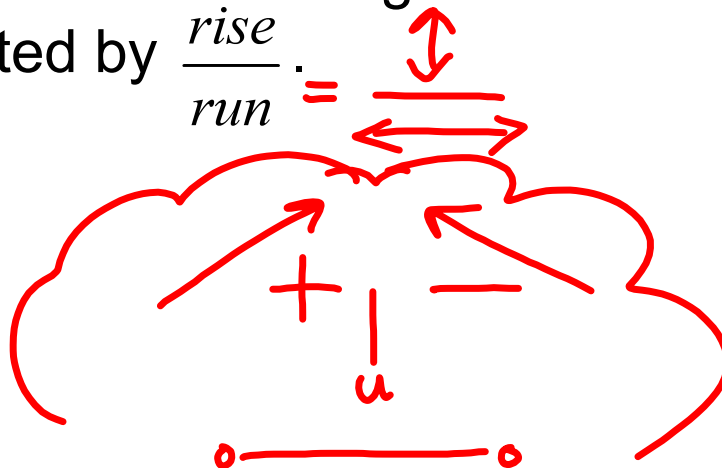
Vocabulary

Solution Set - the set of coordinates that provide solutions to a 2-variable equation, represented by a graph on a coordinate plane.

X-Intercept - where the graph crosses the x-axis. The x-value when $y = 0$.

Y-Intercept - where the graph crosses the y-axis. The y-value when $x = 0$.

Slope - the rate of change between two points represented by $\frac{\text{rise}}{\text{run}}$.



INB - "Graphing Linear Equations"

Slope-Intercept Form for Graphing a Line

$$y = mx + b$$

Slope → *or* → *y-int*

$$f(x) = mx + b$$

Graphing from slope-intercept form:

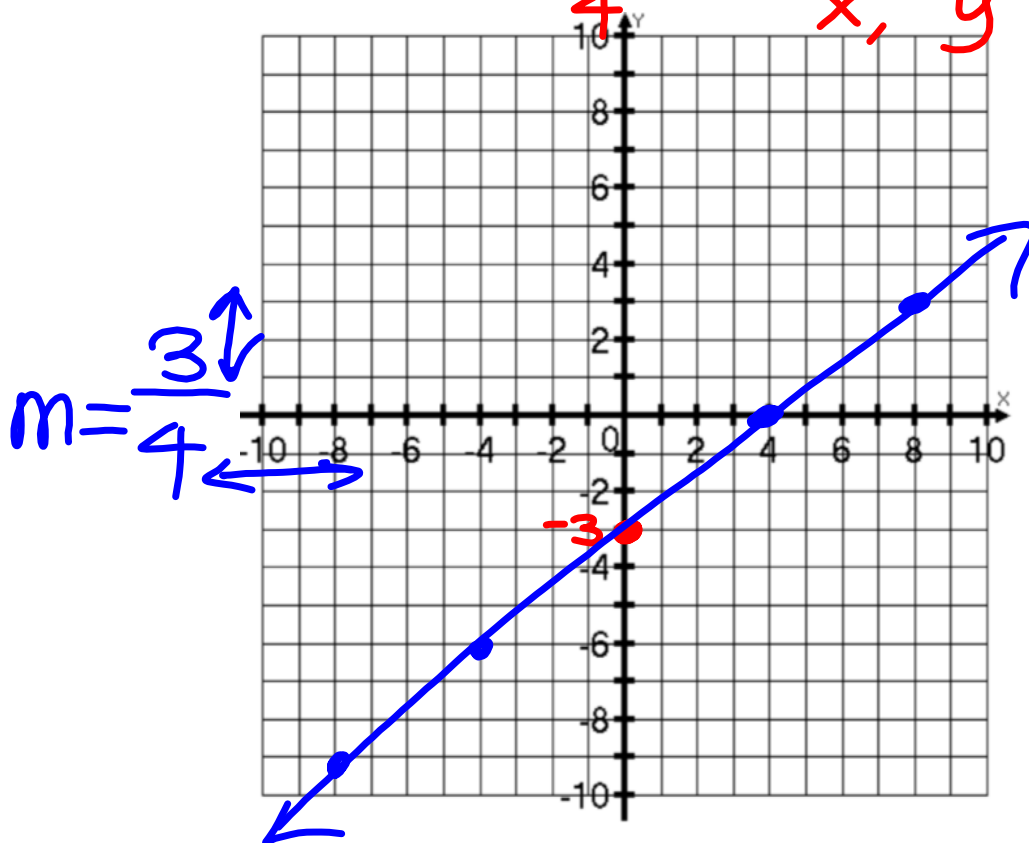
1. Identify the “b” and the “m”
2. Put your “b” on the y-axis; this is your “beginning”. This is known as your y-intercept.
3. Make “m” a fraction - if it is a whole number, put it over 1. This is your slope.
From your “b”, move up or down by the top number. Then, **move right** by the bottom number.

Ex. 1

$$y = \frac{3}{4}x - 3$$

$$m = \frac{3}{4} \quad b = (0, -3) \text{ y-int}$$

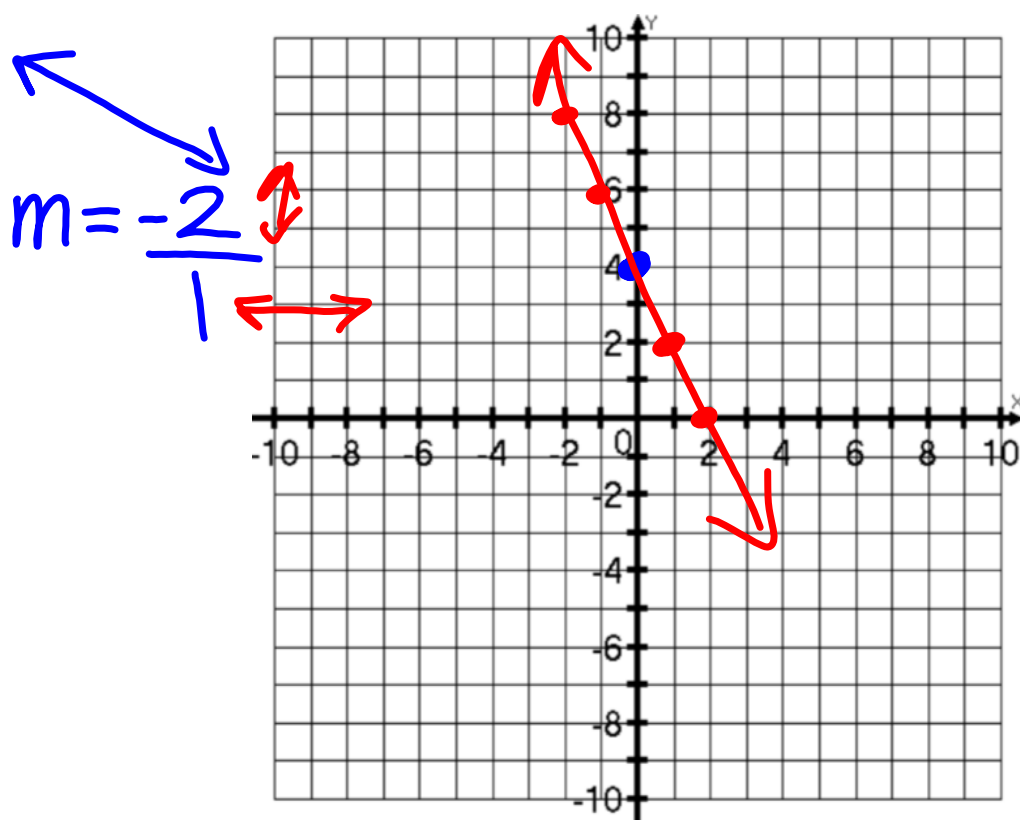
x, y

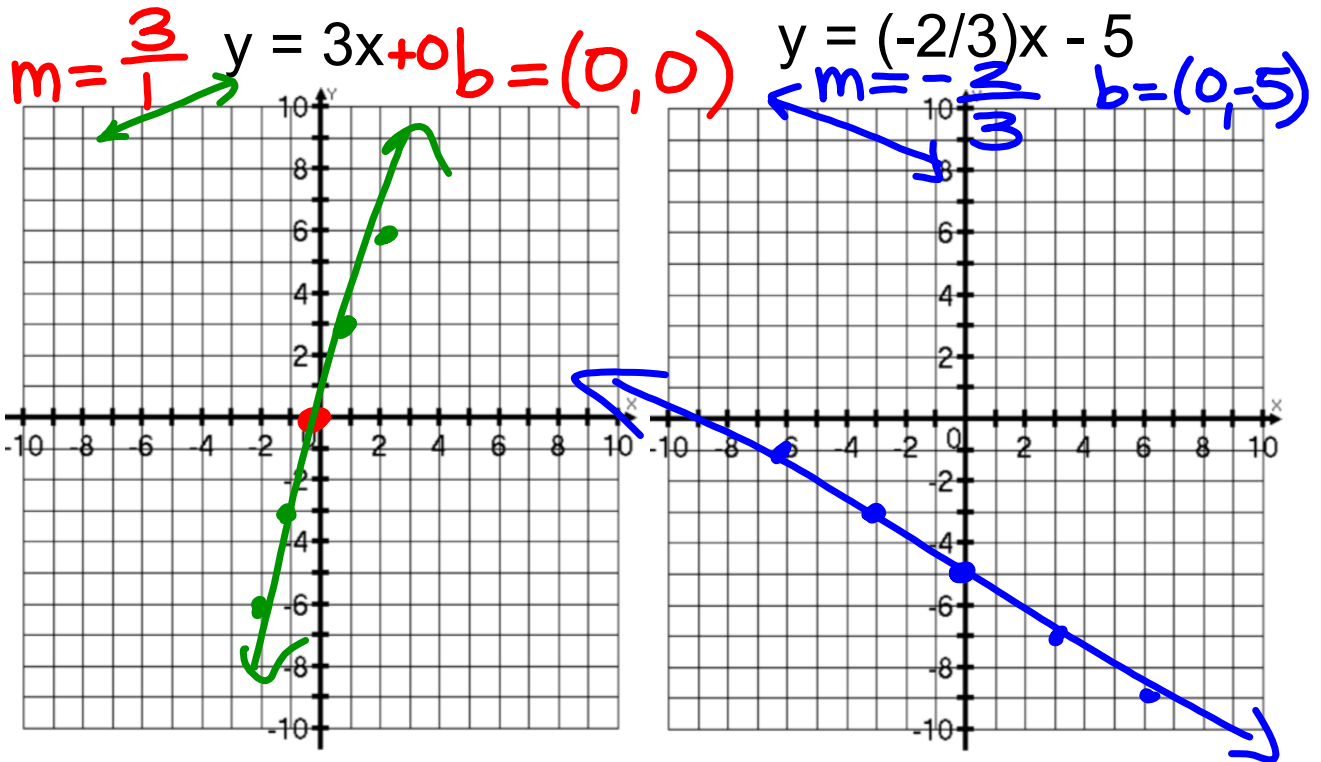


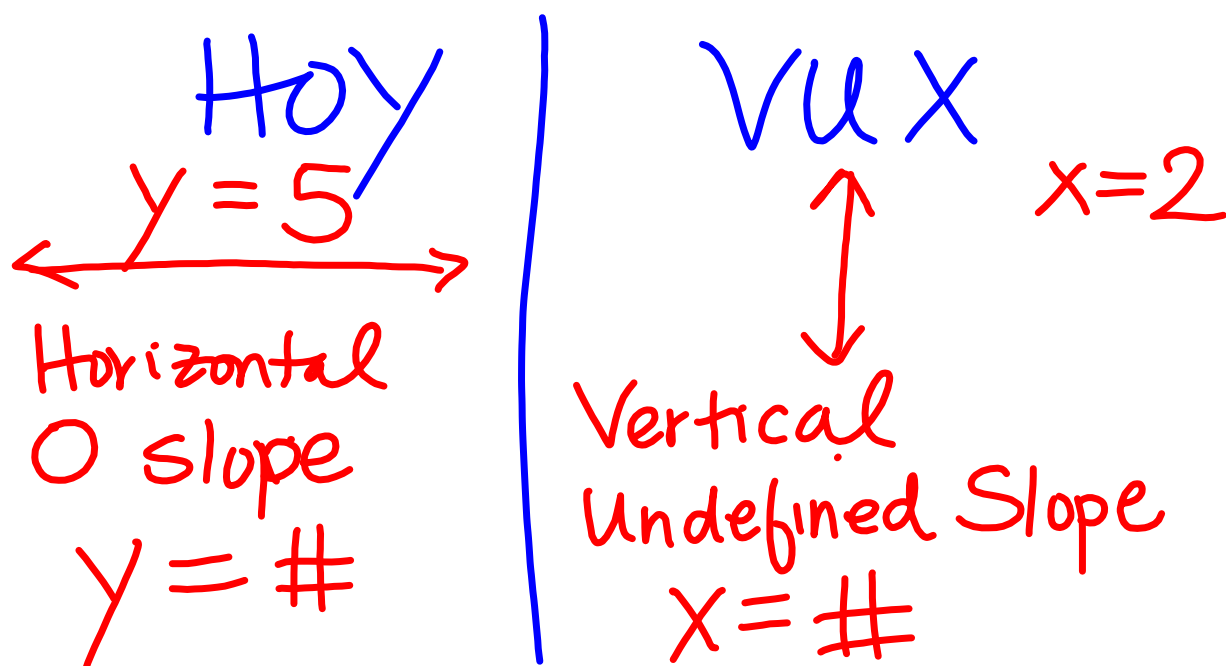
Ex. 2

$$f(x) = -2x + 4$$

$$m = \frac{-2}{1} \quad b = (0, 4)$$







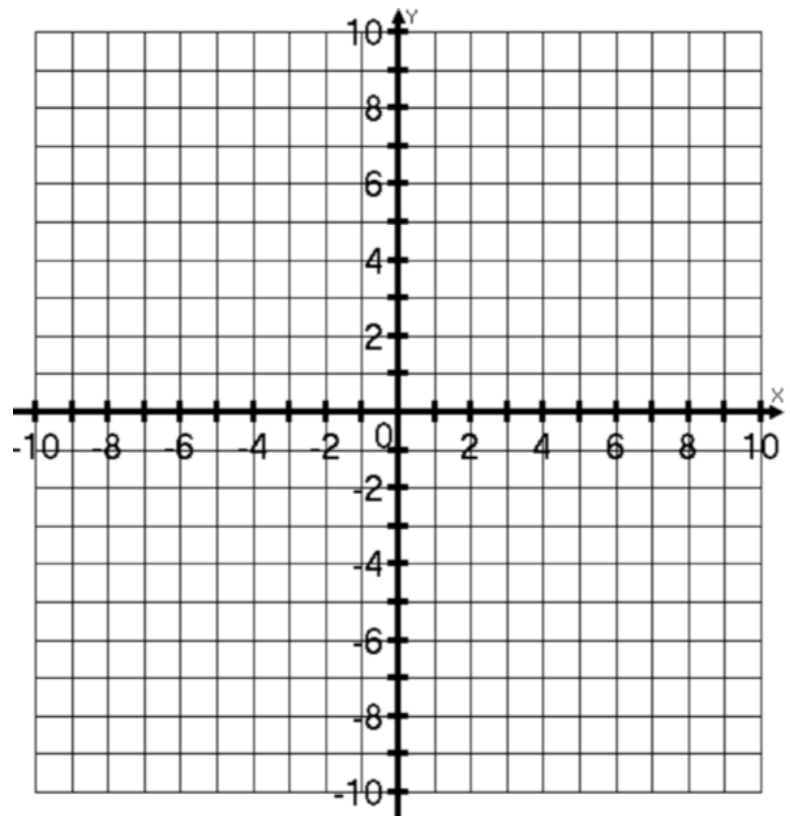
Standard Form for Graphing a Line

$$ax + by = c$$

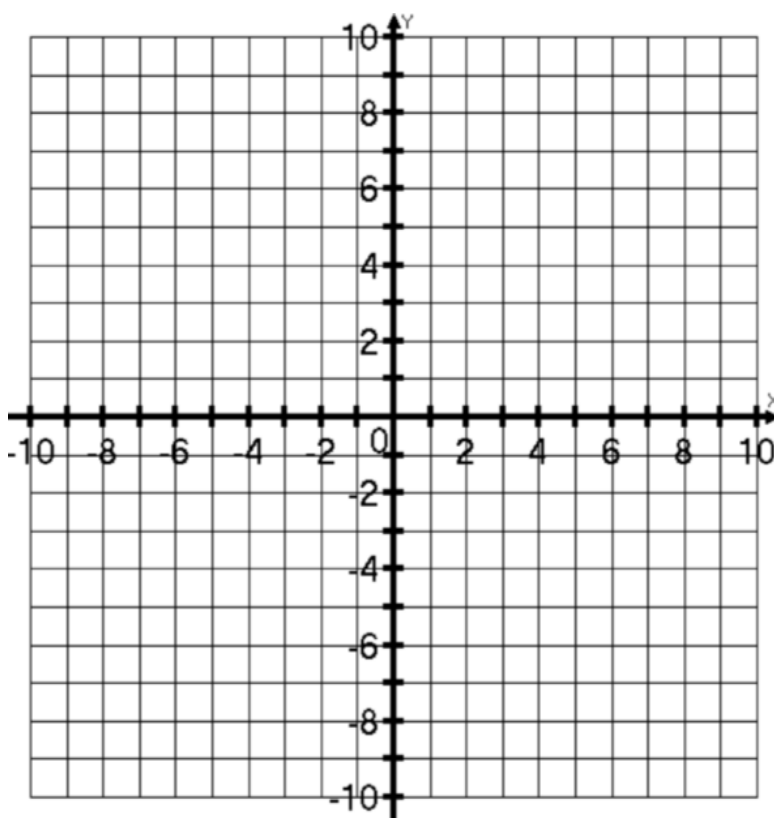
Graphing from standard form:
(Option 1)

1. Solve for y and plot in slope-intercept form

$$2x + 3y = 6$$



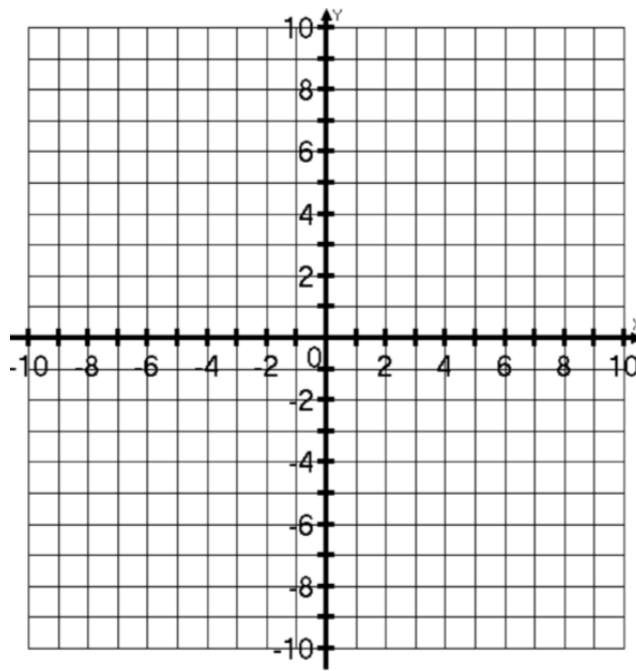
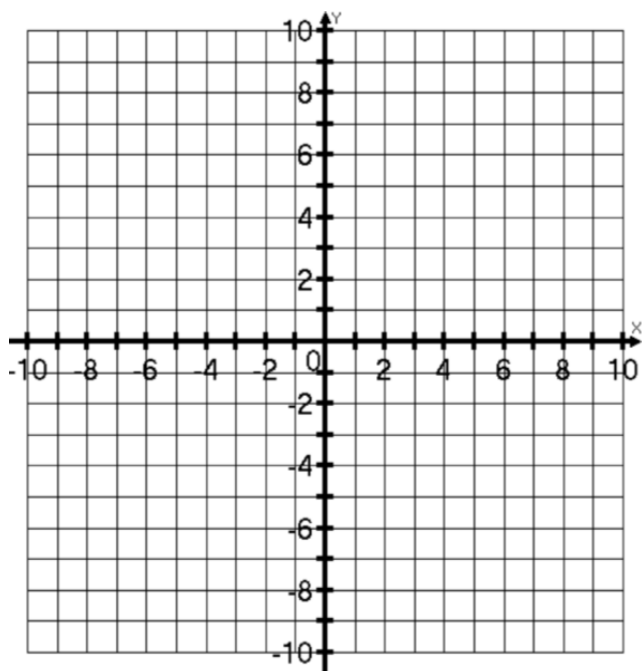
$$4x - 2y = 8$$

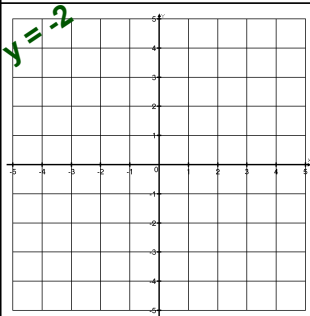
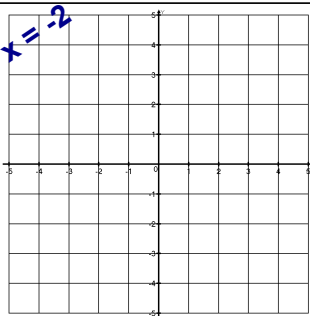


Put in slope-intercept form and graph.

$$3x - y = 4$$

$$2x + 5y = -15$$



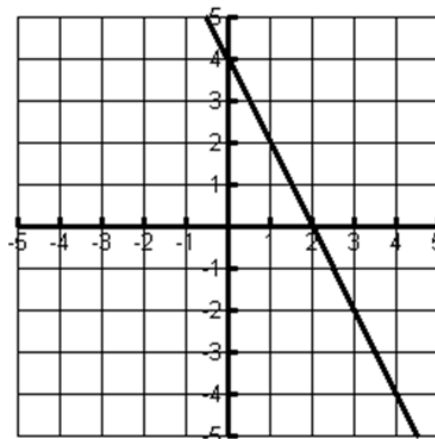
	$y = \#$	$x = \#$
Slope	0	Undefined
Type of Line	Horizontal	Vertical
		

Finding slope-intercept form from a graph:

1. Identify where the graph crosses your y-axis. This is your "b" value.

2. Find 2 points that are where the graph crosses gridlines. Starting at the left point, count up or down how many units it takes to be even with the other point. This is the top number of your "m". Count right how many units it takes to reach the point. This is the bottom value of "m". Write as fraction.

3. Replace "m" and "b" in $y = mx + b$ with your values.



Write equations for the following graphs

